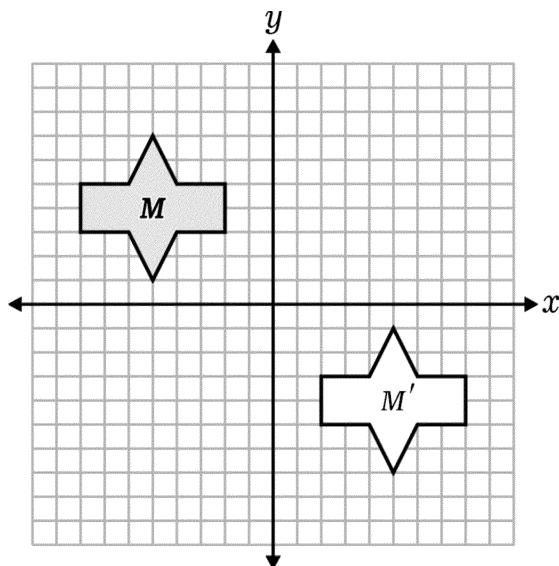


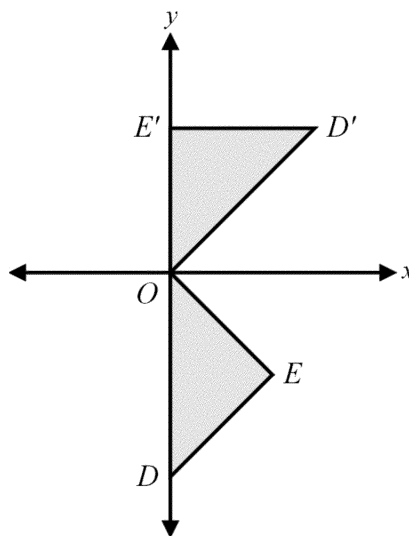
1. In the diagram, M and M' are congruent.



Which of the following is not a way of transforming M into M' ?

- A a rotation of 180° about the origin
- B a reflection across the x -axis, then a reflection across the y -axis
- C a reflection across the y -axis, then a translation down 2 units
- D a translation down 8 units, then a translation right 10 units

2. In the diagram, $\triangle DEO$ is an isosceles right triangle. $\triangle DEO$ can be transformed to $\triangle D'E'O$ by a counter-clockwise rotation of 135° about the origin.



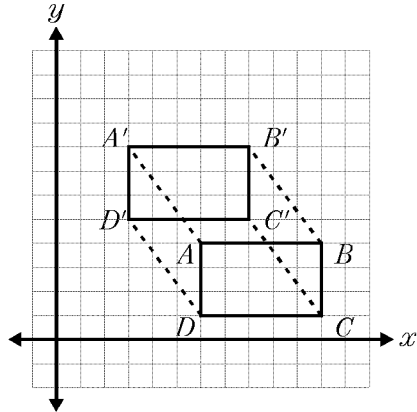
If D has coordinates $(0, -5)$, what are the coordinates of D' ?

- F $(0, -5)$
- G $(5, 5)$
- H $(0, \frac{5\sqrt{2}}{2})$
- J $(\frac{5\sqrt{2}}{2}, \frac{5\sqrt{2}}{2})$

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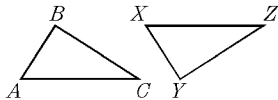
G.10A, G.10B and G.3C

3. A rectangular solid can be created by connecting the corresponding vertices of the congruence transformation $ABCD \rightarrow A'B'C'D'$. If the solid is measured in grid units, what is its volume?



- A 50 units³
 B 60 units³
 C 75 units³
 D 90 units³

4. The SAS (side-angle-side) relationship is a way to show that triangles are congruent. Sets of triangle parts are listed. Which set gives parts that allow triangle ABC to be proven congruent to triangle XYZ by SAS?

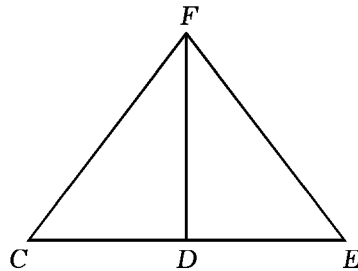


- F $\angle A \cong \angle X$; $\angle B \cong \angle Y$; $\angle C \cong \angle Z$
 G $\angle A \cong \angle X$; $\overline{BC} \cong \overline{YZ}$; $\overline{AC} \cong \overline{XZ}$
 H $\angle A \cong \angle X$; $\overline{AB} \cong \overline{XY}$; $\overline{AC} \cong \overline{XZ}$
 J $\angle A \cong \angle X$; $\angle B \cong \angle Y$; $\overline{AB} \cong \overline{XY}$

5. If triangle ABC is congruent to triangle DEF , then which of the following is true?

- A $\angle B \cong \angle E$
 B $\overline{AB} \cong \overline{EF}$
 C $\angle A \cong \angle F$
 D $\overline{BC} \cong \overline{DE}$

6. Given: $CF = EF$
 \overline{FD} is a median of $\triangle CFE$
 Prove: \overline{FD} bisects $\angle CFE$



statement	reason
\overline{FD} is a median of $\triangle CFE$	(1)
$CD = ED$	(2)
(3)	given
(4)	(5)
$\triangle CFD \cong \triangle EFD$	(6)
(7)	(8)
\overline{FD} bisects $\angle CFE$	(9)

In the above proof, what is reason (8)?

- F CPCTC
 G ASA
 H SSS
 J angles opposite equal sides are equal

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G.10A, G.10B and G.3C

7. There are 26 boys on the high school football team. Many of them are also involved in other sports: 15 play baseball, 11 do wrestling, and 13 do track-and-field. Of these:

- 4 play baseball and do track-and-field.
- 3 play baseball and do wrestling.
- 2 do wrestling and track-and-field.
- 3 play baseball, do wrestling and do track-and-field.

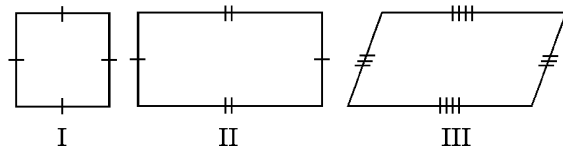
How many boys on the football team are not involved in any of the other three sports?

- A 1
B 2
C 3
D 11

8. Enrique makes the following conjecture:

- Parallelograms have equal diagonals.

Which of the parallelograms in the figure is a counterexample for Enrique's conjecture?

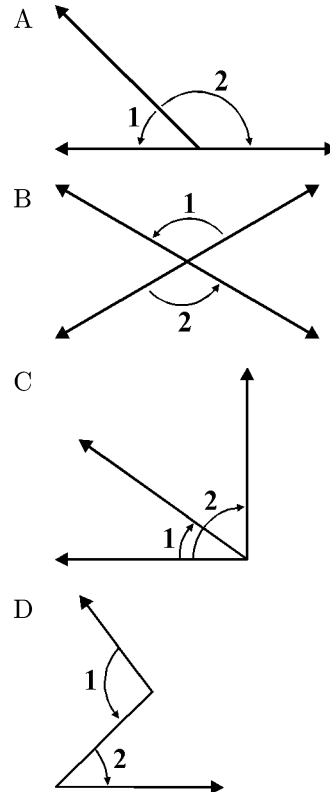


- F II only
G III only
H I and II only
J II and III only

9. Consider the statement:

Adjacent angles are coplanar angles with a common side and a common vertex.

Which of the following figures disproves the statement?



HSCA9-GEOMETRYEOC G.10A, G.10B and G.3C 1/27/2012

- | | |
|------------|-------|
| 1. | |
| Answer: | C |
| Objective: | G.10A |
| 2. | |
| Answer: | J |
| Objective: | G.10A |
| 3. | |
| Answer: | C |
| Objective: | G.10A |
| 4. | |
| Answer: | H |
| Objective: | G.10B |
| 5. | |
| Answer: | A |
| Objective: | G.10B |
| 6. | |
| Answer: | F |
| Objective: | G.10B |
| 7. | |
| Answer: | B |
| Objective: | G.3C |
| 8. | |
| Answer: | G |
| Objective: | G.3C |
| 9. | |
| Answer: | C |
| Objective: | G.3C |